# CLAIMS

I claim:

1 1. An adaptive face recognition system, comprising:

2 a database configured to store a plurality of face classes;

3 an image capturing system for capturing images;

4 a detection system, wherein the detection system detects face images by

5 comparing captured images with a generic face image;

6 a search engine for determining if a detected face image belongs to one of a

7 plurality of known face classes; and

8 a system for generating a new face class for the detected face image if the search

9 engine determines that the detected face image does not belong to one of the known face

10 classes.


1 2. The adaptive face recognition system of claim 1, further comprising an adaptive

2 training system that adds the detected face to an associated face class when the search

3 engine determines that the detected image belongs to one of the known face classes.


1 3. The adaptive face recognition system of claim 2, wherein the adaptive training system

2 adds the detected face using a sequential eigen decomposition.

1    4. The adaptive face recognition system of claim 1, wherein the image capturing system

2    comprises:

3        a video camera;  and

4        a face tracking system that causes the video camera to following a face.


1    5. The adaptive face recognition system of claim 1, wherein the generic face image is

2    represented by a set of eigentemplates.


1    6. The adaptive face recognition system of claim 1, wherein the detection system utilizes

2    a distance criterion to determine if the detected face belongs to one of the known face

3    classes.


1    7. The adaptive face recognition system of claim 1, further comprising a control system

2    for controlling access to user applications.


1    8. The adaptive face recognition system of claim 7, wherein the control system controls

2    access based on an identification of one of the face classes by the search engine.


1    9. The adaptive face recognition system of claim 7, wherein the control system includes

2    an administrative interface for labeling face classes and providing access to reports

3    regarding usage of user applications.

1 10. A method for performing adaptive face recognition, comprising the steps of:

2  capturing a stream of image data;

3  identifying a face image from the stream of image data by comparing the image

4 data to a generic face image;

5  searching a database of face classes to determine if the detected face image

6 belongs to one of a plurality of known face classes;

7  if the detected face image belongs to one of the known face classes, adding the

8 detected face image to the face class that owns the face image; and

9  if the face image does not belong to one of the known face classes, creating a new

10 face class with the face image.


1 11. The method of claim 10, comprising the further steps of:

2  tracking the detected face image;

3  capturing additional views of the detected face image; and

4  adding additional views of the detected face image to the face class that owns the

5 detected face image.


1 12. The method of claim 10, wherein the step of searching the database of face classes

2 includes the step of using a distance criterion to determine if the detected face image

3 belongs one of the known face classes.

1    13. The method of claim 10, comprising the further step of controlling access to an

2    application based on the face class of the detected face image.

1    14. A program product stored on a recordable medium for performing adaptive face

2    recognition, that when executed, comprises:

3        a system for receiving image data;

4        a system for detecting a face image from the received images by comparing the

5    image data to a generic face image;

6        a system for searching a database of face classes to determine if a detected face

7    image belongs to one of a plurality of known face classes;

8        a system for adding the detected face image to an associated face class if the

9    detected face image belongs to one of the known face classes; and

10        a system for creating a new face class with the detected face image if the detected

11    face image does not belong to one of the known face classes.


1    15. The program product of claim 14, wherein the system for adding the detected face

2    image adds the detected face using a sequential eigen decomposition.


1    16. The program product of claim 14, further comprising a face tracking system that

2    causes a video camera to track the detected face.


1    17. The program product of claim 14, wherein the system for adding the detected face

2    image further comprising a selection system that selects only acceptable face images for

3    adding to the associated face class.

1    18.  The program product of claim 14, wherein the detection system utilizes a distance

2    criterion to determine if the detected face belongs to one of the known face classes.


1    19.  The program product of claim 14, further comprising a control system for controlling

2    access to user applications.


1    20.  The program product of claim 19, wherein the control system controls access based

2    on an identification of one of the face classes by the search engine.